



(597)

ENGINEERING • PLANNING • DEVELOPMENT • MANAGEMENT

R12158M1
May 1, 1991

Mr. Chuck B. Schwer, Acting Chief
Sites Management Section
Agency of Natural Protection
103 South Main Street
Waterbury, Vermont 05676

SUBJECT: Windsor County Feeds, South Royalton, Vermont
Limited Site Assessment

Dear Mr. Schwer:

We have completed the subject assessment on the behalf of Windsor County Feeds and present our findings in the following paragraphs. This work was done in response to your February 12, 1991 letter to Mr. Elwin Walker of Windsor County Feeds requiring the installation of three monitoring wells, groundwater flow mapping and an inventory of potential area drinking water sources.

This assessment was requested based on the discovery on February 5, 1991 by a Department of Environment Conservation technician of 2 to 3 inches of fuel oil floating on water in a monitoring well which was installed during the September 25, 1991 removal of 2 underground storage tanks. The tanks removed were a 1,000 gallon diesel tank and a 3,000 gallon No. 2 fuel tank. Information contained on the tank pull form prepared by Marc Coleman of the Department of Environmental Conservation indicated that the diesel tank was in fair condition and the No. 2 fuel tank leaked a small quantity of oil (one gallon) into the excavation during its removal.

FINDINGS

Monitoring Well Installation

Three monitoring wells were installed on March 27 and 28, 1991 at the locations shown on the Site Plan, Figure 1. The drill logs including details on well construction are attached. The work was done by Adams Engineering of Underhill, Vermont, using standard hollow auger drilling techniques. Each well was drilled to refusal on bedrock at depths ranging from 7.3 to 18.5 feet. Overlying bedrock, the soils consisted of saturated fine sandy silt, sand and silty gravel. No free product or odors were noticed during drilling. Groundwater levels ranged from about 3.5 to 8 feet below the ground surface after drilling. The wells were developed by air pumping until clear (approximately 2 hours per well).

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Groundwater

Water table elevations were determined from measurements made on April 1, 1991 and April 9, 1991. Using an assumed datum, the casing elevations for each well was determined. Those measurements are shown in Table 1. Groundwater table contours were approximated from the April 9, 1991 readings and are depicted in Figure 1. As indicated on the figure, the groundwater appears to flow southeast to east, toward the White River at a gradient of about 0.12 in the area of the No. 2 fuel tank. This flow direction is consistent with the general topography for the local area. Based on the observation of fine grained soils (silt) in both the UST excavation and in nearby MW # 3, the groundwater flow velocity could be quite slow possibly ranging between 0.03 to 0.1 feet per day.

TABLE 1
WATER TABLE ELEVATION

		DEPTH TO WATER		WATER ELEVATION	
WELL #	ELEV. TOC	4-1-91	4-9-91	4-1-91	4-9-91
1	101.89	3.60	3.67	98.29	98.22
2	99.81	10.40	11.10	89.41	88.71
3	100.05	6.42	6.35	93.63	93.70
Existing	100.14	4.11	3.50	96.03	96.64

Sample Analysis

The samples were collected on April 9, 1991 and analyzed by EPA Method 418.1. As indicated in the attached laboratory report, there were no dissolved petroleum constituents found above the detection limits.

In addition, we have continued free product measurements (from the end of February to May) with an observation of decreasing product thickness as summarized in the following table.

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& King**
 inc.

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TABLE 2
FREE PRODUCT THICKNESS

Date	2-5-91	2-20-91	3-6-91	3-25-91	4-19-91	5-1-91
Thickness (in.)	2-3	.75	Sheen	.06	.15	.08

Area Drinking Water Sources

According to the Water Superintendent for South Royalton, Mr. Wayne Manning, the nearest house which is not on town water is about 500 feet south from the site along Pleasant Street going out of town. This house, however, is not in the direction of the groundwater movement which flows east toward the river. In this direction, all the homes are on town water.

CONCLUSIONS

Even with the relatively slow groundwater flow velocities, it would be expected that by now some dissolved petroleum would have travelled the relatively short distance between the area of the former tank and MW # 3 if the tank had had much of a leak prior to its removal (i.e., at the estimated velocities of 0.03 to 0.1 feet/day, dissolved product could travel the 10 to 15 feet in a year or less).

Since the groundwater sample from MW # 3 has no dissolved petroleum compounds, the tank probably had not been leaking significantly prior to its removal and the petroleum observed in the monitoring on February 5, 1991 resulted mainly from leaking during the tank pull.

If the observed oil leaked out during the tank removal, it is possible that some trace dissolved product might show up in MW # 3 at some future date. However, because of the likely small quantity of oil involved in this incident (free product measurements since March 6, 1991 have averaged less than 1/8 of an inch) and the fact that there are no nearby receptors, it is our opinion that the risk to the public health or to the environment from this incident is extremely minimal to non existent.

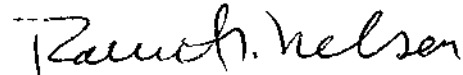
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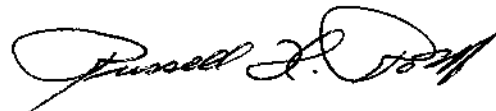
It is our further opinion, that additional monitoring or analyses at this site is not warranted.

Very truly yours,

DuBOIS & KING, INC.



Robert L. Nelson
Senior Hydrogeologist



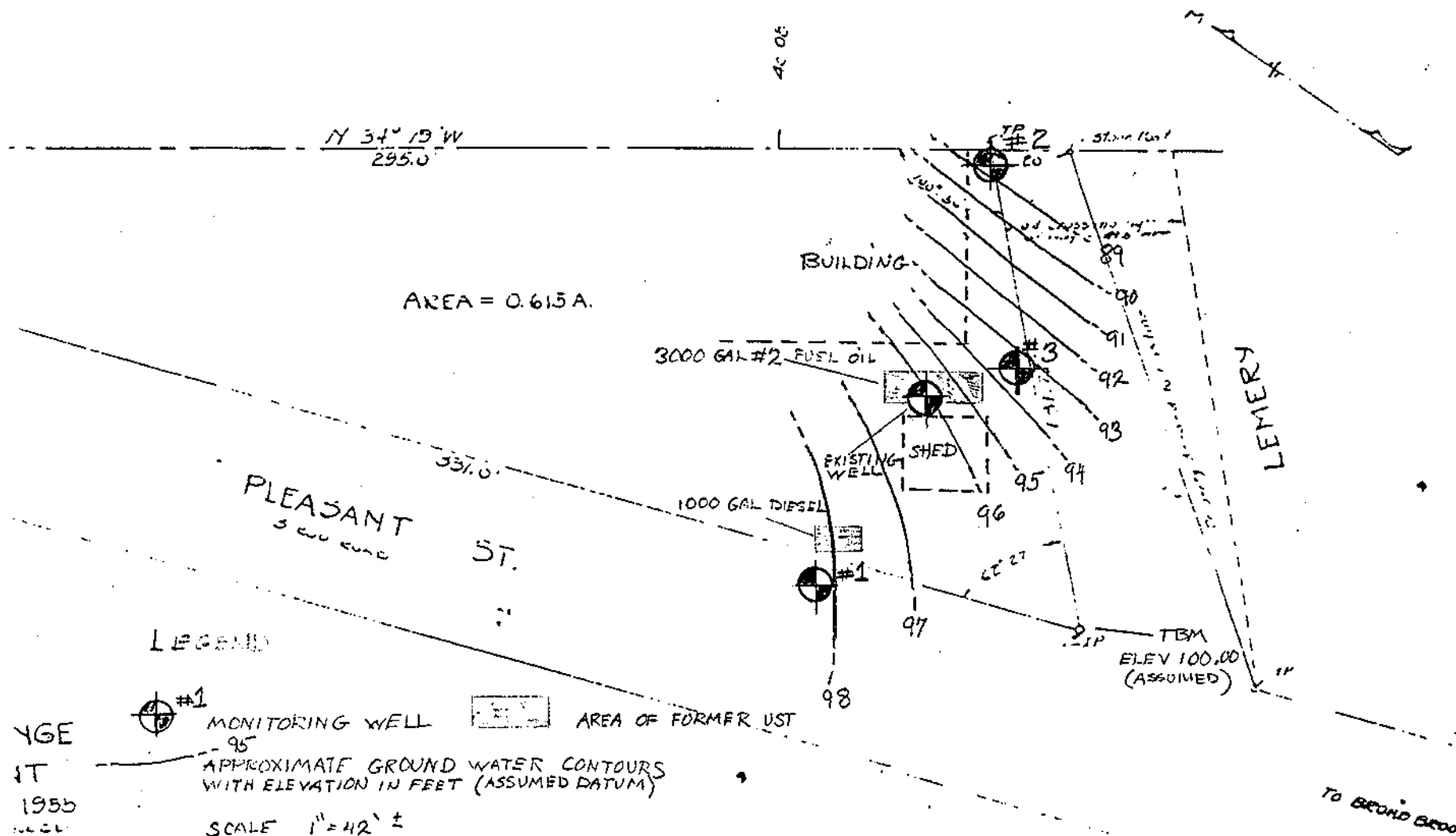
Russell W. Rohloff, P.E.
Project Manager

RLN:bfb
Enclosures
CC: Mr. Elwin Walker

**DuBois
& King** inc.

S.V. RY

TO W.R. JCT. →



DuBois & King engineering planning management development	WINDSOR CO. FEEDS		DRAWN BY	DATE
	SOUTH ROYALTON, VT		RLN	4/9/91
	SITE PLAN		CHECKED BY	PROJ. NO.
			PROJ. ENG.	R12158 MI
			DRAW. NO.	
		FIG. 1		

ADAMS ENGINEERING
Gerard Adams
RD #1, Box #3700
Underhill, Vt. 05489
899-4945 Pager 1-775-8457 FAX 899-4376
Fed. ID 03-0296943

March 29, 1991

Mr. Bob Nelson
Dubois & King Inc.

The following are the boring logs for Windsor County Feeds/South Royalton project conducted under your direction:

3/27/91 MW #1 At utility poles along town road.

SOILS WELL
+2 .3' Top of well 5' solid riser, guard, lock American P5 0587.
-1.3' Top of bentonite pellets 3/8 Peltonite.
-2.3' Bottom of bentonite top of sand pack 4-50# bags .49 mm pool filter sand placed wet.
-3.0' Top of well screen 5' X 2" X .010" slot Diedrich, typ.
-3.4' Water inside augers.
-3.3>5.7' 1,2,1,1,P. (blows from 140# hammer falling 30" to drive 2 X 24" split spoon 6") Saturated fill of wood & glass over gray fine sandy silt.
-7.5' Bottom of screen.
-8.0' Bottom sand pack & well. Top of bentonite.
-8.5' Refusal, rock. bottom of bentonite.

Developed by air pumping: Clean good flow.

MW #2 Near rail road tracks, northeast corner of grain building.

+2 .5' Top of well 10' solid riser, guard, lock.
-2.4' Top of bentonite pellets 3/8 Peltonite.
-3.6' Bottom of bentonite top of sand pack 7-50# bags placed wet.
-4.2>6.2' 1,1,1,2,P. Saturated brown silty sandy gravel fill over gray silty gravel.
-4.8' Top of well screen 10' X 2" X .010" slot.
-8' Water inside augers.
-8.9>10.9' 6,12,15,6,R. Saturated brown silty fine sand over gray & black silty gravel damp, saturated at tip.
-14.3' Bottom of screen.
-14.8' Bottom sand pack & well.
-8.5' Refusal, rock. bottom of bentonite.

Developed by air pumping: Clean fair flow.

3/28/91 Between boiler room & grain building.

+2 .8' Top of well 5' solid riser, guard, lock.
-1.0' Top of bentonite pellets 3/8 Peltonite.
-2.0' Bottom of bentonite top of sand pack placed wet.
-2.5' Top of well screen 4' X 2" X .010" slot Diedrich, typ.
-3.5' Water inside augers.
-3.8>5.8' 1,2,8,12,P. Saturated brown fine sandy silt over mottled brown medium sand some silt.
-6.5' Bottom of screen.

-6.7' Bottom sand pack & well. Top of bentonite.
-7.3' Sampler, no progress, dark gray silt & broken slate
rock.

-7.3' Auger refusal, rock. bottom of bentonite.

Developed by air pumping: Clean good flow.

Sachs
Gerard Adams

Keys enclosed also at grain company office.



P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-3376

LABORATORY REPORT

CLIENT NAME:	Windsor Co. Feed, So. Royalton, VT	LABORATORY NO.:	454-91
ADDRESS:	c/o DuBois & King P.O. Box 339 Randolph, VT 05060	PROJECT NO.:	80439
		DATE OF SAMPLE:	4/9/91
		DATE OF RECEIPT:	4/9/91
ATTENTION:	Bob Nelson	DATE OF REPORT:	4/29/91

RESULTS

(Expressed as [mg/l] milligrams per liter except as noted)

	Total Petroleum Hydrocarbons (418.1)
MW-1	BDL
MW-2	BDL
MW-3	BDL

BDL = Below Detection Limit of 1.0 mg/l

Respectfully submitted,

SCITEST, INC.

Roderick J. Lamothe
for
Roderick J. Lamothe
Laboratory Director

RJL/cha